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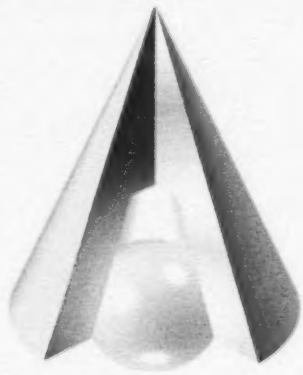
Balancing Family and Work: Transition to Self-employment Among New Mothers



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^{r} revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
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Abstract

This study contributes to the debate about the role of self-employment in helping women improve family–work balance by offering evidence from a uniquely rich dataset that links individual records from the 2006 Census of Population to records from the 2011 National Household Survey. It focuses directly on changes in the main labour market activities of women with newborn children. The study shows that becoming a new mother increases the probability of making a transition from wage employment to self-employment. Furthermore, the weekly work hours of the new mothers who make such a transition become far more uniformly distributed than their hours were when they were wage earners. The work-hour distribution of new mothers who make a transition to self-employment is also considerably more uniform than the work-hour distribution of new mothers who remain wage earners.

Key words: family and work balance, employment transitions, self-employment, childcare

JEL classification: J13, J16, J22

Executive summary

This study contributes to the debate about the role of self-employment in helping women improve family–work balance by offering Canadian evidence from a uniquely rich dataset that links individual records from the 2006 Census of Population to records from the 2011 National Household Survey. Unlike most previous studies estimating the determinants of women's self-employment, the analysis focuses directly on transitions from wage employment to self-employment among new mothers. New mothers are defined in this study as women who had no children under the age of 6 in 2006 when they were in wage employment, but had such children in 2011. An essential aspect of the study is that it compares changes in the distribution of weekly hours spent on market work among new mothers who become self-employed with the corresponding changes among new mothers who remain wage workers. The large number of observations in the study sample allows for more precise estimates to be obtained in the analysis of the transitions of new mothers from wage employment to self-employment. Changes in the weekly hours spent by new mothers on market work are also directly observable in the data. Finally, the size and richness of the dataset make it possible to further explore the role of occupation in transitions from wage employment to self-employment.

At the conceptual level, the study highlights at least two attractive aspects of flexibility in work hours for women trying to balance family and work. First, it gives them greater freedom to adjust the total number of daily or weekly working hours spent on market work in a way that suits their childcare and home-production needs far better than the typical discrete work-time choices offered by employers (full-time work, part-time work or no employment). Second, unlike wage employment that normally requires continuous work for a certain number of hours, self-employment allows women to fragment their daily work schedule and tailor it to their childcare needs (e.g., feeding and changing).

The key empirical findings of the study can be summarized as follows.

First, new mothers have a higher probability of making a transition from wage employment to self-employment than other women. When a wide range of personal and family characteristics are controlled for, the probability of making a transition to self-employment is 1.2 percentage points higher for new mothers than for all other women in the subsample, and the difference is statistically significant at the 99% level. This conclusion is robust to changes in the model specification and consistent with the results from various alternative models.

Second, the weekly work hours of the new mothers who make a transition to self-employment become far more uniformly distributed than their hours were when they were wage earners. This finding supports the view that a transition to self-employment among new mothers is associated with a greater demand for work-hour flexibility, and allows them to choose their number of market-work hours in a way that may better reflect their preferences for family–work balance.

Third, new mothers who become self-employed, as well as those who remain in wage employment, spend, on average, fewer hours per week on market work after having children, compared with the number of hours they spent on market work before having children. However, the work-hour distribution of new mothers who become self-employed is far more uniform than that of new mothers who remain wage earners. The latter group tends to work either close to a standard 40-hour week or close to 0 hours per week.

Finally, the study asks whether some basic differences in skills and job characteristics exist between new mothers who transition from wage employment to self-employment and those who remain in wage employment, and whether these differences make it easier for the women who become self-employed to make such a transition. The analysis uses 10 broad occupational categories to maintain a sufficient sample size in each category. The differences between the

occupational distributions in 2006 and 2011 indicate that, for a substantial number of new mothers, a transition from wage employment to self-employment coincides with an occupational change. Compared with the 2006 distribution, the 2011 distribution shows an increase in the share of occupations in health; social science, education, government service and religion; and art, culture, recreation and sport. Conversely, substantial reductions are observed in the share of occupations in business, finance and administrative occupations; natural and applied sciences and related occupations; and occupations unique to processing, manufacturing and utilities. Little change is observed for sales and service occupations. Women in health occupations in 2006 were least likely to change their occupation when they became self-employed. More than 80% of new mothers who worked in health occupations in 2006 and made a transition to self-employment remained in health occupations after becoming self-employed. Those in business, finance and administrative occupations—the single largest category in 2006—were highly likely to work in a different occupation after becoming self-employed.

1 Introduction

Much of the debate about the consequences of the sharp increase in the labour force participation of women in many Western countries in the past half-century focuses on its association with the increase in the economic status of women, their child-bearing and child-rearing decisions, and the well-being of their family members. Although each of these issues is subject to intensive debate, it is now generally accepted that the increase in the labour force participation of women makes balancing family and work more difficult. A recent United States government report points out that "both mothers and fathers in dual-earning couples increasingly report work-family conflict" (Council of Economic Advisers 2014, 6–7).

The importance of understanding the labour-supply decisions of women in the context of balancing family and work explains why their decisions to become self-employed have received particular attention. It is known that men and women generally enter into self-employment for different reasons (Kuhn and Schuetze 2001). The decisions of women to enter into self-employment are more significantly influenced by non-pecuniary considerations. As primary family caregivers, women are more likely than men to be motivated by their parental responsibilities and to choose self-employment if they believe that such a decision will benefit the family (Allen and Curington 2014).

Previous studies find that, for women, having young children is positively associated with the probability of being self-employed (Connelly 1992; Devine 1994; Boden 1999; Arai 2000; Lombard 2001; Wellington 2006). Boden (1999) reports that "flexibility of schedule," "child-care problem" and "other family/personal obligations" are among the main reasons self-employed women with young children give for choosing self-employment. However, most of these studies are cross-sectional, and few of them attempt to link the transitions of women from wage employment to self-employment directly to an increase in the demand for spending time on childcare (after giving birth to or adopting young children). This link is particularly relevant to the issue of balancing family and work, but it remains largely unexplored primarily because of unavailability of suitable data. Although most longitudinal household surveys contain questions related to employment and income sources, the number of self-employed women in such surveys is usually very small, making it difficult to estimate reliably the degree of association between women switching to self-employment and having new children in the family.

This study aims to contribute to the debate about the role of self-employment in helping women improve family–work balance by offering Canadian evidence from a uniquely rich dataset that links individual records from the 2006 Census of Population to records from the 2011 National Household Survey (NHS).[1] Two important aspects of flexibility in work hours may influence the decisions of women to become self-employed after having a new baby: (1) flexibility with respect to choosing the optimal number of daily or weekly hours spent on market work, and (2) flexibility with respect to choosing the optimal allocation of hours spent on market work (work-time 'fragmentation'). A simple theoretical model presented in this study highlights the differences between (1) and (2).[2] The empirical analysis focuses directly on women with newborn children and their transitions from wage employment to self-employment to explore the links between such transitions and the changes in childcare demand associated with becoming a mother.

Several recent studies have taken a closer look at self-employment as a possible mechanism for women with young children to reconcile their demand for market work with their childcare needs. These studies, however, have not been able to examine directly the likelihood of transitioning from wage employment to self-employment after giving birth or to analyze changes in work hours associated with such transitions. Hence, they have produced somewhat mixed conclusions.

1. The 2011 NHS is a voluntary survey that replaced the census long-form questionnaire in Canada. More details are provided in the data section.
2. Flexibility in the place of work is another element of flexible work arrangements related to self-employment.

Wellington (2006), for instance, tests the hypothesis that advances in computer software and technology, which made working from home a real possibility for a large number of people, have contributed to the attractiveness of self-employment for women with young children. Using cross-sectional data from the Current Population Survey (CPS), she finds little support for the idea that mothers of young children were more likely to be self-employed in the 1990s compared with the 1970s and 1980s, although she does find that more highly educated women with young children are more likely to be self-employed than their less-educated counterparts. However, the small size of her (alternative) longitudinal sample precludes her from obtaining reliable estimates in her longitudinal analysis. Using CPS data, Lombard (2001) finds that women are more likely to be self-employed when their demand for flexibility in work hours is greater. However, she also finds that the higher earnings potential of self-employment explains most of the increase in women's self-employment in the 1980s.

Results from European studies are also mixed.[3] Evidence from a Spanish study using time-diary data (Gimenez-Nadal, Molina and Ortega 2012) is consistent with the view that mothers choose self-employment to increase flexibility in their work hours. However, it also finds that self-employed mothers do not spend more time on childcare activities than wage-earning mothers.[4] Joona (2014) offers Swedish evidence that casts doubt on traditional assumptions about the family–work balance preferences of self-employed mothers with young children and the motivations behind their decision to become self-employed. Sweden, which is known for its generous and flexible parental leave system, offers an interesting comparison case vis-à-vis the United States and Canada, because work-schedule flexibility is presumably less of a concern for Swedish women who choose to return to wage employment after giving birth. Like most other researchers, Joona (2014) finds that having young children increases the probability of women choosing self-employment. However, she questions the motivation offered in previous U.S. studies, observing that self-employed Swedish mothers spend about as much time on market work as wage-earning mothers and are more likely to take a very short parental leave. Joona suggests that Swedish women with young children who choose self-employment do so not because they wish to reduce the time spent on market work but because they are more "career-oriented," have a preference for market work, and, in fact, wish to increase their labour market involvement while on parental leave.

The main goal of this study is to offer direct evidence of the role played by self-employment in the decisions related to family–work balance of women with newborn children in Canada. Unlike most previous studies estimating the determinants of women's self-employment, this study focuses directly on transitions from wage employment to self-employment among new mothers. New mothers are defined here as women who had no children under the age of 6 in 2006 when they were in wage employment, but had such children in 2011.[5] An essential aspect of the study is that it compares changes in the distribution of weekly hours spent on market work among new mothers who become self-employed with the corresponding changes among new mothers who remain wage workers.

The analysis exploits key advantages of the linkage between the 2006 Census and the 2011 NHS, compared with data used in similar previous studies. The large number of observations in the study sample allows more precise estimates to be obtained in the analysis of the transitions of new mothers from wage employment to self-employment. Changes in the weekly hours spent by new mothers on market work are also directly observable in the data. Finally, the size and richness

3. See Rønsen (2014) for a review of recent European studies.
4. This is in line with more general findings that self-employed individuals do not spend more time on childcare than wage earners (Hildebrand and Williams 2003).
5. The term "new mothers" is adopted as shorthand, since these women could have had children aged 6 and over in 2006.

of the dataset make it possible to further explore the role of the human-capital characteristics of women in their transitions from wage employment to self-employment.

The key findings of the study can be summarized as follows. First, new mothers have a higher probability of making a transition from wage employment to self-employment than other women. This conclusion is robust to changes in the model specification and consistent with the results from various alternative models. Second, the weekly work hours of the new mothers who make a transition to self-employment become far more uniformly distributed than when they were wage earners. This finding supports the view that a transition to self-employment among new mothers is associated with a greater demand for work-hour flexibility. Finally, new mothers who become self-employed, as well as those who remain in wage employment, spend, on average, fewer hours per week on market work after having children, compared with the number of hours they spent on market work before having children. However, the work-hour distribution of new mothers who become self-employed is far more uniform than that of new mothers who remain wage earners. The latter group tends to work either close to a standard 40-hour week or close to 0 hours per week.

2 Two views on how flexibility in work hours affects the entry of women into self-employment

Most economics studies consider employment choices within a general time-allocation framework. In this framework, individuals seek to maximize their utility, subject to budget and time constraints, by optimally allocating their time between work and leisure according to their preferences. Flexibility in work hours is an important factor affecting the employment decisions of individuals; it is especially important for women, whose traditional social role usually demands more time spent on household production and childcare. This is why much of the research on the decisions of women to enter into self-employment has focused on the role of the flexible work hours associated with self-employment, compared with the more rigid work-hour arrangements offered to most wage-earning employees.

However, flexibility in work hours is often interpreted in the literature in two different ways. One way is to view it in the context of choosing a total number of working hours that is different from the number of working hours usually required by full-time employment. Even when employers also offer part-time employment, the choices are limited to particular hours of work that may not fit the specific needs of women. Therefore, one reason for choosing self-employment is to be able to optimize the total number of daily or weekly hours allocated to market work. Another way to interpret flexibility in work hours is to focus not on the total number of hours, but on the segmentation of hours spent on market work during the day. Taking care of young children is usually associated with specific demands that make it difficult for women to be away from them for an extended period of time. Being able to divide their work time into segments that better suit their childcare needs (e.g., feeding and changing) may be a particularly attractive aspect of self-employment for women, even when both wage employment and self-employment allow them to optimize the total number of hours spent on market work.

The following model illustrates the attractiveness of both aspects of flexibility in work hours to women trying to balance family and work. It is assumed, for simplicity, that a mother spends her time on just two activities: market work and childcare. The mother tries to allocate her time optimally between the two activities by maximizing the following utility function:

$$U = f(\tau) \equiv \tau \cdot H \cdot w + (1-\tau) \cdot H \cdot g(\tau), \qquad (1)$$

where w is the hourly wage associated with market work (assumed to be fixed); H is the number of daytime hours (assumed to be 12, from 6 a.m. to 6 p.m.); τ is the share of daytime allocated

to market work ($0 \leq \tau \leq 1$); and $g(\tau) = \tilde{g}(1-\tau)$ is a function representing a hypothetical monetary value of the time spent on childcare, which depends on the total share of time allocated to childcare.[6] The mother does not wish to spend all her day on either market work or childcare, but wishes to allocate a portion of the day to each of these activities. Her time is optimally allocated between market work and childcare at $\tau^* \in (0,1)$ that solves

$$\max_{\tau} \left[\tau \cdot H \cdot w + (1-\tau) \cdot H \cdot g(\tau)\right]. \tag{2}$$

A standard maximization exercise leads to the first-order conditions

$$\frac{\partial U}{\partial \tau} = H \cdot w + \frac{\partial g(\tau)}{\partial \tau} H - \left[H \cdot g(\tau) + \frac{\tau \cdot \partial g(\tau)}{\partial \tau} H \right] = 0, \tag{3}$$

yielding the optimal τ^*, which will depend on the shape of $g(\tau)$ (and, in the more general case, the shape of the wage function). Intuitively, utility in (1) is maximized at a point where a marginal increase in income associated with a further increase in τ is just enough to offset a marginal increase in dissatisfaction from spending less time with the child. The optimal τ^* highlights the first aspect of flexibility in work hours—the ability to optimize the total time spent on market work.

An important feature of (3) is that optimization assumes a continuous timeframe. In reality, however, wage earners are likely to face discrete employment choices that are different from τ^*, such as working full time, working part time or not working at all. In this case, self-employment is essentially a mechanism that allows women with young children to remain in the labour market while choosing a specific number of work hours—τ^* or close to τ^*—that may be different from what a full- or part-time job would otherwise demand, and consequently optimizing the amount of time spent on family and childcare.

For the next step, it is assumed that the daytime, H, is divided into two periods: morning (6 a.m. to 12 p.m.) and afternoon (12 p.m. to 6 p.m.). The mother now tries to maximize her utility not by choosing an optimal total number of hours spent on market work during the daytime, but by choosing the optimal number of hours spent on work in the morning and in the afternoon, separately. The utility of the mother in each time period is assumed to be additive, as follows:

$$U_t = f(\tau_t) \equiv \tau_t \cdot H_t \cdot w + (1-\tau_t) \cdot H_t \cdot g(\tau_t), \tag{4}$$

Where $t = m,a$ (m = morning and a = afternoon), and the total utility of the mother is $U = U_m + U_a$. Maximizing total daytime utility now requires maximizing utility in each time period, as follows:

$$\begin{aligned} \max U &= \max U_m + \max U_a \\ &= \max_{\tau_m} \left[\tau_m \cdot H_m \cdot w + (1-\tau_m) H_m g(\tau_m)\right] + \max_{\tau_a} \left[\tau_a \cdot H_a \cdot w + (1-\tau_a) H_a g(\tau_a)\right]. \end{aligned} \tag{5}$$

Equation (5) makes it clear that the optimal allocation can vary from one period to another: the mother may wish to spend more time on market work in the morning and less in the afternoon, or vice versa. Furthermore, even if the optimal τ^* is constant across periods (i.e., the mother wants

6. It makes no difference whether H includes or excludes the nighttime. To simplify the exposition, only daytime is considered. The labour supply of husbands and the amount of time they spend on childcare are assumed to be fixed, and the childcare function $G = (1-\tau) \cdot H \cdot g(\tau)$ is assumed to be concave.

to spend the same amount of time on market work in the morning and the afternoon, $\tau_m^* = \tau_a^*$), time allocations consistent with τ^* solving (3) are not the same as the optimal time allocation implied by (5). For example, $\tau_m^* = \tau_a^* = 0.5$ will maximize the utility of the mother in (5) only if she spends half of her morning and half of her afternoon on market work, while $\tau^* = 0.5$ maximizes her utility in (3) even if she spends all morning on market work and all afternoon on childcare.

The second model illustrates another attractive feature of self-employment: it allows mothers to split their market work into multiple time segments so they can better accommodate their childcare and household-production needs. Even when part-time wage employment is available for mothers who wish to reduce the time spent on market work, self-employment may still be a more attractive option if it offers greater time-allocation flexibility. For some new mothers, the ability to choose the optimal timing of market work, and not necessarily to reduce the total hours spent on market work, may be the main reason for choosing self-employment. Such mothers may spend the same, or even more, hours on market work than women in wage employment.

The first part of the empirical analysis in this study focuses on determining whether there is conclusive evidence that women are more likely to make a transition from wage employment to self-employment after becoming new mothers and facing new demand for time spent on childcare and related home production. It is important to note that the study does not address any causal relationship between fertility decisions and transition to self-employment. The likely endogeneity of the former in this context is well understood by the authors, as is the fact that having a child and becoming self-employed are two decisions that in many cases are made jointly.[7] In this analysis, becoming a new mother stands only as a proxy for a sharp increase in the demand for time spent on childcare and a potential rise in the intensity of the issue of family–work balance.[8] Regardless of the way a new mother arrives at her decision to switch from wage employment to self-employment, a necessary first step in establishing a direct link between balancing family and work and entering into self-employment is to document an increase in the probability of making this switch that is associated with becoming a new mother. The empirical model presented in the next section captures this relationship and is in line with similar models in earlier studies analyzing the effects of children on transitions to self-employment (e.g., Lombard 2001; Wellington 2006).

Next, the study considers a two-part question related to flexibility in work hours. First, do new mothers who switch to self-employment work more flexible hours than when they were in wage employment? And, second, compared with new mothers remaining in wage employment, are those who become self-employed working more flexible hours? This part of the analysis follows directly from the importance of the different aspects of flexibility that are highlighted by the theoretical model above, although it does not examine each of these aspects separately.[9] Instead, the analysis focuses on flexibility and the role it plays in the decisions of new mothers to become self-employed more broadly, by looking at changes in the distribution of weekly work hours captured by changes in the shape of the kernel density.

7. Wellington (2006) points out an important difference between examining the effect of fertility on labour market participation and the effect of fertility on choosing between wage employment and self-employment. In the latter case, the issue is not whether a woman participates in the labour market (she does in both cases), but the form her participation takes. Narrowing the focus to the choice between wage employment and self-employment also reduces the number of potential confounding factors associated with the effects of becoming a new mother on the outcome variable in the model.
8. Transitions to self-employment during the 2006-to-2011 period can occur even before the arrival of a child; no claims are made regarding the timing of such transitions.
9. It would be desirable, for instance, to further examine changes in the allocation of daily work hours of new mothers after they become self-employed, to assess the role of time fragmentation. However, information that would allow for such analysis (i.e., time diaries) is not available in the data.

3 Data and sample

The study uses data from the linkage between the 2006 Census and the 2011 NHS. The 2006 Census microdata files are based on the census long-form questionnaire randomly distributed to 20% of all Canadian households in that year. For people who received a long-form questionnaire, responding was mandatory. In 2011, the long-form questionnaire was abolished; instead, Statistics Canada conducted a new voluntary survey (the NHS), with questionnaires distributed to approximately 30% of Canadian census households to collect information previously included in the long-form census questionnaire.[10] It is estimated that about 21% of the Canadian population participated in the NHS (Statistics Canada 2013).

The 2006 Census–2011 NHS file used in this study was created using a sophisticated two-step linkage process.[11] It contains 535,790 individuals who were aged 15 and over in 2010. Weights were created to make the linkage data representative of the Canadian census population in 2006 (Grondin and Grenier 2014). These weights are used in the analysis below.

The linkage data are uniquely suitable for examining the employment transitions of women with recently born children. One of the main advantages of the dataset is its very large size; this is particularly important in the analysis of women making transitions to self-employment, since the share of such women in the total population is very small.

The 2006 Census–2011 NHS dataset is an individual panel of two calendar years with a five-year interval. New mothers in this study are women who did not have any children under the age of 6 in 2006, but had such children in 2011.[12] The employment transitions of women are defined based on their employment status in 2006 and 2011.

The five-year interval between the two calendar years makes the data suitable for examining the employment transitions of new mothers. The Canadian Employment Insurance program provides maternity benefits for a maximum of 15 weeks and parental benefits for a maximum of 35 weeks.[13] Women with newborn children can receive such benefits for almost the full first year after giving birth. The real challenges related to balancing family and work, however, may come after that, so a shorter calendar timeframe may be less suitable for analyzing the employment transitions of mothers with young children. In addition, a transition to self-employment may also take some time, so, in shorter-interval data, many such transitions would be missed. Women in the sample could become new mothers at any point during the five-year interval between 2006 and 2011, so the analysis in this study is not related to any specific time period following the birth of a child, but covers the period of up to five years from the time the child is born. The data also include a rich set of demographic and job characteristics of women, including educational attainment, working hours and occupation.

Workers in the 2006 Census–2011 NHS dataset are classified into three categories according to their main labour market activities: (1) those who work mainly for wages and salaries, (2) those who are mainly self-employed, and (3) those who do not do any paid work. Self-employed women can own either incorporated or unincorporated businesses. The distinction may offer additional insight into the choices of self-employed women, since the costs of establishing and running an

10. See Statistics Canada (2015) for detailed sampling information.
11. Individual records from the 2006 Census and the 2011 NHS were linked using probabilistic linkage based on demographic and residential information available in both data sources. Only the records of respondents who agreed that their tax data be used in both the 2006 Census and the 2011 NHS (instead of having to report them) were retained in the linkage used in this study (Grondin and Grenier 2014).
12. The children were born sometime between May 2006 and May 2011. New mothers could already have children aged 6 and over in 2006. However, even women with older children would face a greater demand for childcare in the presence of newborn children.
13. According to the Canada Employment Insurance Commission (CEIC), "claimants who received both maternity and parental benefits used 46.7 weeks, or 93.5%..., of the 50 weeks of maternity and parental benefits available to them on average in 2011/12, a proportion similar to that of the previous year (93.6%)" (CEIC 2013, 81).

unincorporated business are usually lower (Rispoli 2009). The study focuses on the employment transitions of women from the first two categories (i.e., women who did any paid work in 2006). The study sample is restricted to women aged 21 to 40 in 2006 and excludes women living on Indian reserves or in the northern territories in that year. The sample summary is presented in the first column in Table 1. In 2006, the average age of women in the sample was 30.5. About 29% of women in the sample had no postsecondary qualifications, and almost 32% held a university degree. Some 39% of the women were single, with the rest being either legally married or in a common-law relationship. The average number of children under the age of 18 was 0.93, and about 30% of women had children under the age of 6 in 2006.

Table 1
Sample summary based on 2006 Census characteristics

	2006 Census–2011 National Household Survey linkage	Full 2006 Census data
	mean	
Variable		
Age	30.5	30.7
Other family income (dollars)	52,088	50,226
Number of children under the age of 18	0.93	0.92
	percentage share of total	
Age group		
21 to 25	25.5	25.1
26 to 30	24.3	23.8
31 to 35	24.3	24.4
36 to 40	25.9	26.7
Education		
High school or less	29.3	30.4
Some postsecondary	39.1	39.7
Bachelor's degree	26.1	24.6
Graduate degree	5.5	5.3
Partnership status		
Single	38.9	39.1
Couple	61.1	60.9
Age of youngest child		
No children	33.0	33.3
0 to 1	13.4	12.8
2 to 3	9.4	9.3
4 to 5	7.4	7.1
6 to 12	16.8	16.8
13 to 17	5.2	6.0
18 and over	14.6	14.8
Mother tongue other than English or French	18.3	19.5
Visible minority	21.0	21.6
Urban	85.2	84.7
Region		
Atlantic provinces	6.8	7.1
Quebec	23.2	23.4
Ontario	39.9	39.3
Prairies	17.6	17.5
British Columbia	12.5	12.7
Paid employment	93.4	93.4
Self-employment, incorporated	1.5	1.6
Self-employment, unincorporated	5.1	5.0
	number	
Observations (unweighted)	69,374	673,673
Observations (weighted)	3,619,332	3,467,619

Notes: Linkage weights are used in the calculations. "Other family income" is the total family income minus women's own earnings from market work.

Sources: Statistics Canada, authors' calculations based on data from the 2006 Census of Population and the 2006 Census of Population–2011 National Household Survey.

An important concern that must be addressed is whether the study sample selected from the 2006 Census–2011 NHS linkage data is representative of the 2006 Census population subjected to the same sample restrictions. The right column in Table 1 shows that the subsample of women selected from the full 2006 Census microdata file, subject to the same sample restrictions, has the same characteristics as the women of the study sample (in the left column). In particular, about 93.4% of the working women in the study sample are wage earners—the same as in the full 2006 Census data. The shares of self-employed women who are incorporated (1.5%) and self-employed women who are unincorporated (5.1%) in the study sample are also very similar to the corresponding shares in the full 2006 Census data (1.6% and 5.0%, respectively). The similarity of the distributions offers a large degree of reassurance that the conclusions reached below can be generalized to the 2006 Census population.

4 Young children and the probability of transitioning from wage employment to self-employment

4.1 Employment transitions matrix

To provide an overview of how the employment transitions of women are associated with becoming new mothers, Table 2 shows 2006-to-2011 transition matrixes for women who were (1) wage earners, (2) self-employed (incorporated) or (3) self-employed (unincorporated) in 2006. The fourth column in Table 2 shows the percentage of women who were not involved in any income-generating labour-market activities in 2011. Almost 88% of women who had been wage earners in 2006 remained wage earners in 2011 (Table 2, Panel A). About 4.3% made a transition to self-employment, and most of them (3.2% of the total, or about three-quarters of those who made the transition) made the transition to unincorporated self-employment. About 46% of women who had been self-employed in 2006 became wage employees in 2011; a similar share remained self-employed.

A two-period comparison between new mothers and all other women in the sample offers descriptive evidence of the correlation between becoming a new mother and the transition to self-employment. Table 2, Panel C, shows transition rates for all women, excluding new mothers.[14] A higher ratio of women remained in wage employment in 2011 (88.9%), compared with new mothers (82.7%). The differences between panels B and C in the share of women transitioning from wage employment to self-employment are primarily driven by transitions to unincorporated self-employment.

The overall share of women in Panel C transitioning from wage employment to self-employment (4.1%) is 1 percentage point lower than the corresponding share among new mothers (5.1%). This is a smaller difference than the difference of 5.3 percentage points in leaving paid work (12.2% for new mothers and 6.9% for other women). Not surprisingly, exiting the labour force is the main margin of adjustment for new mothers. Yet the descriptive results in Table 2 are also consistent with the idea that becoming a new mother increases the probability of a transition from wage employment to self-employment. The next section examines the issue using a more formal approach.

14. Panel C also includes women who had children under the age of 6 in 2006 and had additional children between 2006 and 2011.

Table 2
Employment-status transition rates, 2006 to 2011, women aged 21 to 40 in 2006

	2011			
2006	Wage employees	Self-employed, incorporated	Self-employed, unincorporated	Not in paid work
		percent		
Panel A: All women				
Wage employees	87.9	1.1	3.2	7.8
Self-employed, incorporated	46.0	33.2	12.3	8.4
Self-employed, unincorporated	46.1	6.9	38.7	8.3
Panel B: New mothers				
Wage employees	82.7	1.1	4.0	12.2
Self-employed, incorporated	48.4	36.6	9.7	5.3
Self-employed, unincorporated	39.8	9.3	40.1	10.8
Panel C: Other women				
Wage employees	88.9	1.1	3.0	6.9
Self-employed, incorporated	45.7	32.8	12.7	8.8
Self-employed, unincorporated	46.7	6.7	38.5	8.1

Note: The percentages in each row may not add up to 100% because of rounding.

Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

4.2 Regression analysis of the transition of women to self-employment

The first model examines the impact of becoming a new mother between 2006 and 2011 on the probability of transition from wage employment to self-employment between these two years. The model specification is similar to Wellington's (2006). The probit model is defined by

$$\Pr(\Delta E = 1 | X_{06}, K_{06}, \Delta C) = \Phi(\alpha + \beta' X_{06} + \delta' K_{06} + \gamma \Delta C), \quad (6)$$

Where ΔE equals 1 if a woman makes a transition from wage employment to self-employment between 2006 and 2011 and 0 otherwise. X_{06} and K_{06} are the sets of variables included to control for differences in the characteristics of women and their children, and in the base year (2006). ΔC is an indicator variable that equals 1 if a woman is a new mother.

The vector X_{06} contains an age variable, a set of dummy variables for different levels of educational attainment above high school (some postsecondary education, bachelor's degree and graduate degree) and a dummy variable that equals 1 if a woman is either legally married or in a common-law relationship. It also contains a mother-tongue dummy that equals 1 if the mother tongue of a woman is either English or French, a dummy variable indicating whether a woman is a member of a visible minority group[15] and a dummy variable that equals 1 if a woman lives in an urban area. In addition, the vector X_{06} includes a set of dummies for four Canadian geographical regions that controls for differences in regional labour markets and economic conditions (Atlantic provinces, Quebec, Prairies and British Columbia; Ontario is omitted), a set of dummies for the

15. According to Statistics Canada, "visible minority refers to whether a person belongs to a visible minority group as defined by the *Employment Equity Act* and, if so, the visible minority group to which the person belongs. The *Employment Equity Act* defines visible minorities as 'persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.' The visible minority population consists mainly of the following groups: Chinese, South Asian, Black, Arab, West Asian, Filipino, Southeast Asian, Latin American, Japanese and Korean" (Statistics Canada, n.d.).

industries of employment, and the log of "other family income" (defined as the total family income minus women's own earnings from market work). The income variable is included to control for differences in the overall financial situation of the women's families.[16]

K_{06} contains a set of dummies for the age of the youngest child and a variable for the total number of children under the age of 18 in 2006. Taken together, the estimated effects of the age of the youngest child in 2006, of the number of children under the age of 18 in 2006, and of becoming a new mother between 2006 and 2011 will provide evidence of whether women who transitioned to self-employment between 2006 and 2011 did so to improve family–work balance.

Column (1) in Table 3 shows the results from a transition probability model in which the dependent variable is the probability of being self-employed in 2011, conditional on being a wage earner in 2006. The subsample used for the estimation contains 64,816 women who were wage earners in 2006. The average marginal effect estimates in Column (1) support the view that women were more likely to switch from wage employment in 2006 to self-employment in 2011 if they became new mothers between the two years. The probability of making a transition to self-employment is 1.2 percentage points higher for new mothers than for all other women in the subsample, and the difference is statistically significant at the 99% level.[17] Among women other than new mothers, those who already had children under the age of 4 in 2006, and especially those with children under 1 year old, were more likely to become self-employed in the next five years, compared with those who had no children in 2006 (1.0 to 1.6 percentage points).

Column (3) shows estimates from a model in which the new-mother variable is replaced by a set of dummy variables corresponding to different changes in the number of children under the age of 6 between 2006 and 2011. It shows the effect of these changes on the probability of switching to self-employment for new mothers, as well as for women who had children under the age of 6 in 2006. The effect of the change in the number of children in the model is intended to capture the intensity of the demand for flexible work hours associated with transitions from wage employment to self-employment. The probability of switching to self-employment for women who had one new child under the age of 6 between 2006 and 2011 is 1.1 percentage point higher than for women who experienced no change. For women who had two or more new children under the age of 6, the corresponding increase in probability is 2.5 percentage points. In contrast, for women who had fewer children under the age of 6 in 2011 than in 2006, the probability of switching to self-employment was 0.7 percentage points lower than for those who experienced no change. The total number of children under the age of 18 does not appear to have a substantial effect on the probability of such a transition in either Column (1) or (3).

Other variable estimates in Columns (1) and (3) are generally consistent with findings from previous studies on the determinants of self-employment. Highly educated women (those with graduate degrees) are particularly likely to make a transition to self-employment.[18] Previous studies emphasize the importance of alternative income sources in the family and their impact on the attitudes of women towards risk and the decisions of women to enter into self-employment. However, the log of other family income has only a small positive effect (0.4 percentage points) on the probability of making a transition to self-employment.

16. This variable is also indirectly related to the willingness of women to take financial risks associated with self-employment.
17. The effect is even stronger (1.8 percentage points) if women who did not do any paid work in 2011 are excluded (these estimates are available upon request). In other words, among women involved in market work in both years, new mothers were more likely to switch to self-employment than other women.
18. However, this is a general result and is not specifically related to the education of new mothers. Further investigation into the relationship between the educational attainment of new mothers and their transitions to self-employment is hampered by the small number of highly educated new mothers in the sample.

Table 3
Estimated average marginal effects on entry into self-employment and wage employment

	Probability of entry into self-employment				Probability of entry into wage employment			
	Model 1		Model 2		Model 3		Model 4	
Variable	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
	coefficient	standard error	coefficient	standard error	coefficient	standard error	coefficient	standard error
Age group (omitted: 21 to 25)								
26 to 30	0.004 ***	0.000	0.004 ***	0.000	-0.058 ***	0.004	-0.061 ***	0.004
31 to 35	0.007 ***	0.000	0.008 ***	0.000	-0.168 ***	0.004	-0.175 ***	0.004
36 to 40	0.005 ***	0.000	0.007 ***	0.000	-0.223 ***	0.004	-0.233 ***	0.004
Education (omitted: high school or less)								
Some postsecondary	0.003 ***	0.000	0.003 ***	0.000	-0.053 ***	0.003	-0.053 ***	0.003
Bachelor's degree	0.006 ***	0.000	0.006 ***	0.000	-0.048 ***	0.003	-0.047 ***	0.003
Graduate degree	0.034 ***	0.001	0.034 ***	0.001	-0.147 ***	0.004	-0.142 ***	0.004
Mother tongue other than English or French	-0.001 ***	0.000	-0.001 **	0.000	0.090 ***	0.003	0.090 ***	0.003
Visible minority	-0.004 ***	0.000	-0.004 ***	0.000	-0.084 ***	0.003	-0.083 ***	0.003
Couple	-0.001 **	0.000	-0.003 ***	0.000	-0.090 ***	0.004	-0.087 ***	0.004
Other family income (log)	0.004 ***	0.000	0.004 ***	0.000	0.025 ***	0.001	0.026 ***	0.001
Urban	-0.006 ***	0.000	-0.006 ***	0.000	0.038 ***	0.003	0.039 ***	0.003
Region (omitted: Ontario)								
Atlantic provinces	-0.017 ***	0.000	-0.017 ***	0.000	0.072 ***	0.005	0.069 ***	0.005
Quebec	0.004 ***	0.000	0.004 ***	0.000	-0.046 ***	0.003	-0.047 ***	0.003
Prairies	0.013 ***	0.000	0.013 ***	0.000	0.003	0.003	0.003	0.003
British Columbia	0.008 ***	0.000	0.008 ***	0.000	0.061 ***	0.003	0.061 ***	0.003
Age of the youngest child in 2006 (omitted: no children)								
0 to 1	0.016 ***	0.001	0.014 ***	0.001	-0.065 ***	0.004	-0.076 ***	0.004
2 to 3	0.010 ***	0.001	0.013 ***	0.001	0.026 ***	0.005	-0.001	0.005
4 to 5	0.004 ***	0.001	0.008 ***	0.001	-0.022 ***	0.005	-0.050 ***	0.005
6 to 12	-0.005 ***	0.001	-0.008 ***	0.001	0.085 ***	0.004	0.100 ***	0.004
13 to 17	-0.013 ***	0.001	-0.015 ***	0.001	0.042 ***	0.006	0.053 ***	0.006
18 and over	-0.021 ***	0.000	-0.021 ***	0.000	0.005	0.007	0.002	0.007
Number of children under the age of 18 in 2006	-0.001 ***	0.000	0.001 ***	0.000	0.008 ***	0.001	-0.001	0.001
New mothers	0.012 ***	0.000	...	...	-0.066 ***	0.004	...	...
Changes in the number of children under the age of 6 between 2006 and 2011 (omitted: no change)								
Number of children declined	...	...	-0.007 ***	0.000	...	...	0.054 ***	0.004
Number of children increased by 1	...	...	0.011 ***	0.000	...	...	-0.053 ***	0.004
Number of children increased by 2 or more	...	...	0.025 ***	0.001	...	...	-0.110 ***	0.005

... not applicable

** significantly different from reference category ($p < 0.01$)

*** significantly different from reference category ($p < 0.001$)

Notes: Industry controls are included in all models. The unweighted number of observations is 64,816 for Models 1 and 2, and 4,558 for Models 3 and 4.

Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

The results in Columns (1) and (3) support the view that balancing childcare responsibilities and market work is an important consideration in the decision of women to become self-employed. To confirm this result, two alternative scenarios are also examined, shown in Columns (5) and (7) in Table 3. The employment transition matrix in Table 2 indicates that a little less than one-half of self-employed women in 2006 became wage earners by 2011. If self-employment helps women to balance family and work, self-employed women are less likely to transition to wage employment than to stay self-employed when they become new mothers. Column (5) shows the results from a model that estimates the probability of transitioning from self-employment to wage employment with the same set of controls as the model in Column (1).[19] The probability of becoming wage earners by 2011 among women who were self-employed in 2006 is 6.6 percentage points lower for new mothers, compared with other women.

Another way to look at the attractiveness of self-employment as a way to balance family and market work for new mothers is to ask whether women who switch from wage employment to self-employment when they have young children return to wage employment after their children grow up. Answering this question in the context of the data used in this study would require knowing the future (post-2011) employment transitions of women who switched to self-employment between 2006 and 2011. Such data are unavailable. Instead, Column (7) presents results from the estimation of transitions from self-employment to wage employment between 2006 and 2011 with a set of dummies corresponding to different changes in the number of children under the age of 6 between 2006 and 2011, as in Column (3). Among women who had fewer children under the age of 6 in 2011, 82% no longer had any children under the age of 6. The probability of making a transition from self-employment to wage employment by 2011 was 5.4 percentage points higher for women with fewer children under the age of 6 in 2011, compared with 2006, than for women with the same number of children under the age of 6 in both 2006 and 2011. Hence, the estimates in all four columns in Table 3 support the hypothesis that women choose self-employment to balance family and work.

Becoming a new mother is strongly and positively associated with marriage or entry into a long-term relationship. New mothers are likely to experience two events at around the same time: entry into a marital partnership (legal and common-law unions) and entry into motherhood. Both events can affect transitions from wage employment to self-employment. The former can be viewed as a confounding factor when the analysis focuses on the latter. In addition to this issue, lone mothers and mothers who have a spouse are likely to face different economic environments. For lone new mothers, balancing family and work is a much more daunting task than for new mothers who can rely at least partially on the income of a partner.

To minimize the impact of entry into a marital partnership, the models are re-estimated on a subsample of women who were married in both 2006 and 2011. The results shown in Appendix Table 1 confirm the conclusions reached in the previous section. The estimated marginal effect of being a new mother (0.012) is highly significant and identical to the one reported in Table 3. Overall, the results in Appendix Table 1 are very similar to the corresponding results for all women in Table 3. To the extent that excluding women whose marital status changed between 2006 and 2011 from the analysis largely eliminates marital-status transitions as a confounding factor in the model, these results strengthen the conclusion that there is a positive association between becoming a new mother and the probability of switching from wage employment to self-employment.

19. The models in Columns (5) and (7) estimate the probability of being a wage earner in 2011, conditional on being self-employed in 2006. The estimation sample contains 4,558 women who were self-employed in 2006.

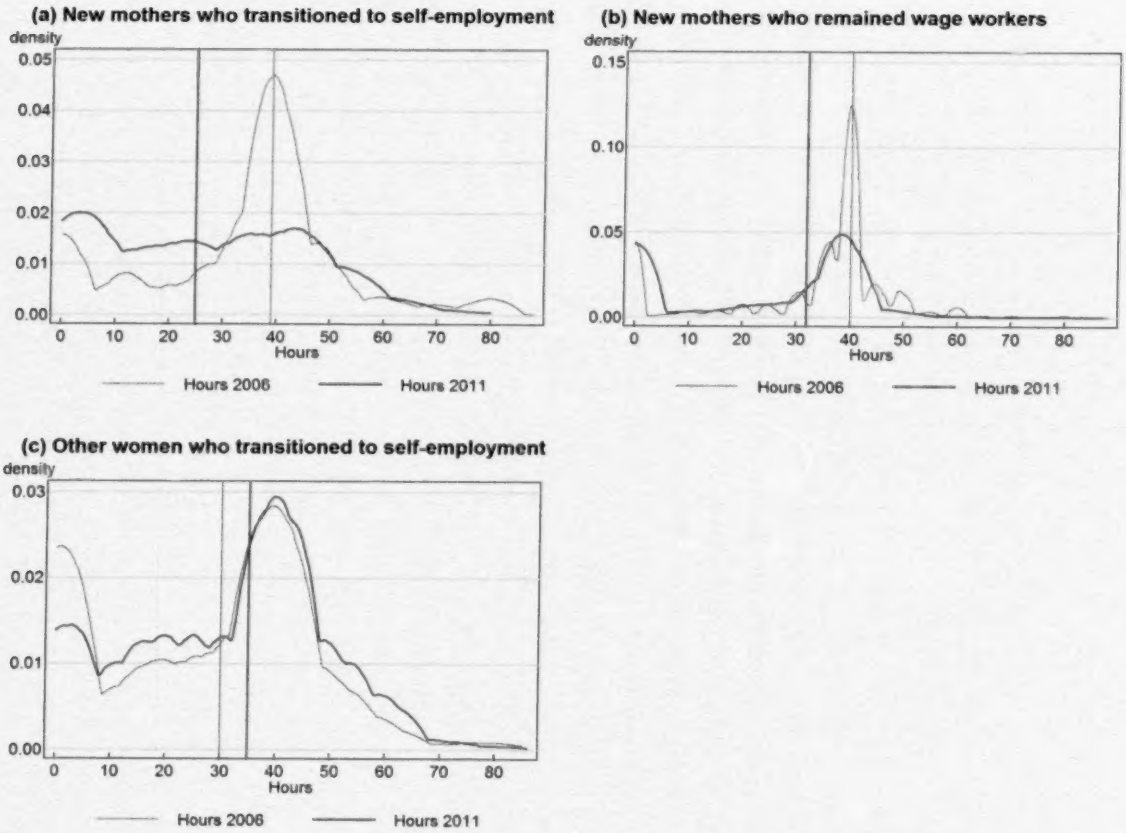
5 Transition to self-employment and hours spent on market work

5.1 Changes in the distribution of weekly work hours

The next important question to consider is whether new mothers work more flexible hours when they become self-employed, compared with new mothers who remain in wage employment. As previously mentioned, the data do not allow for an analysis of the daily time allocation of women. It is possible, however, to track changes in the weekly hours women spent on market work between 2006 and 2011. Given the context of the study, the analysis focuses on three groups of women: (1) new mothers who made a transition from wage employment to self-employment, (2) new mothers who remained wage earners, and (3) women other than new mothers who were wage earners in 2006 and who became self-employed between 2006 and 2011. Figure 1 depicts the distributions of weekly market-work hours in 2006 and 2011 for each of the three groups. The density functions representing the shapes of the weekly work-hour distributions are estimated using a kernel density estimator.[20] The vertical lines represent median weekly work hours in each year.[21]

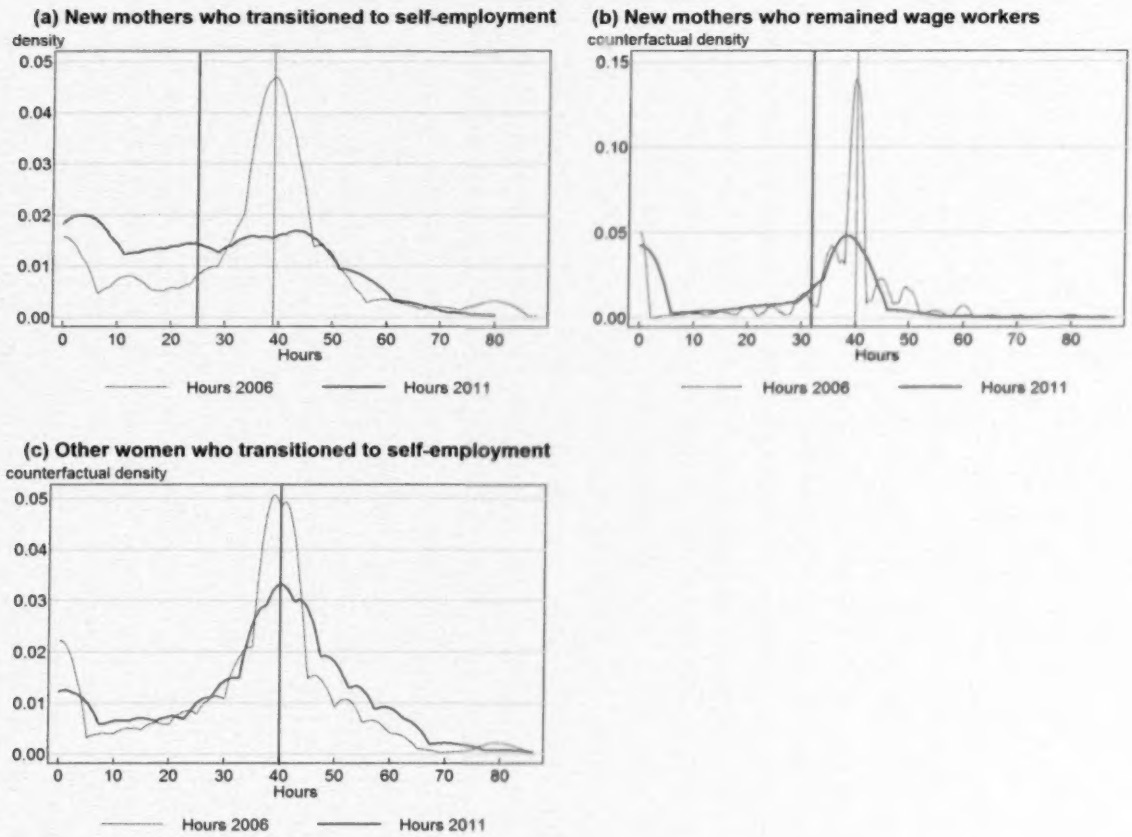
20. We use the Epanechnikov kernel function.
21. Women can report being wage employees or self-employed and working zero hours. This is because hours of work are reported only for a particular reference week, whereas the main labour market activities are reported for the reference week only if the person worked during the reference week. If the person did not work during the reference week, the main labour market activities are reported for the job of longest duration during the year preceding the reference week. The right tail of the distribution is truncated at 90 hours. Very few working women report more than 90 hours; their inclusion or exclusion does not affect the median. Appendix Figure 1 also shows the cumulative distribution functions corresponding to the probability density functions in Figure 1.

Figure 1
Changes in the distribution of weekly hours from 2006 to 2011



Note: Vertical lines represent median hours.
Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

Figure 2
Changes in the counterfactual distribution of weekly hours from 2006 to 2011



Note: Vertical lines represent median hours.
Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

The comparison of changes in the distribution of weekly working hours for all three groups allows for a much better understanding of the decisions of women than a simple comparison of changes in the mean (or median) work hours (these are shown in Appendix Table 2). The mean hours spent on market work by all new mothers—those who became self-employed and those who remained wage workers—were lower in 2011 than in 2006. Therefore, the mean comparison sheds little light on the importance of the flexibility associated with self-employment and the transitions from wage employment to self-employment. Changes in the distribution of weekly work hours, on the other hand, are directly related to the issue of flexibility.

At one extreme, when the choice of work hours is limited to only two options—not working or working a full-time work week—the distribution of work hours can be expected to concentrate around two points. These are 0 and 40 hours (assuming a typical North American full-time work week), with relatively few women working any other number of hours. At the other extreme, if women can work any number of hours (full flexibility), their distribution of weekly work hours can be expected to be close to uniform. Therefore, the 2006-to-2011 changes in the shape of the weekly work-hour distribution for each group of women should reveal changes in the flexibility of their work hours, which can be compared across all three groups.

The results for new mothers from groups (1) and (2) are shown in Figures 1(a) and 1(b), respectively. The two graphs show clear differences in the changes to the distributions of the market-work hours of these women.

The 2011 weekly work-hour distribution for new mothers in group (1) is almost flat (particularly left of the 50-hour mark). The 2006 'hump' around the median mark has virtually disappeared, and the market-work hours are almost evenly distributed along the horizontal axis. Hence, new mothers switching to self-employment had much greater flexibility in working any number of hours between 0 and 50 in 2011 than in 2006.[22] Changes in the distribution of weekly hours reveal that the transition to self-employment allows women to choose their number of market-work hours in a way that may better reflect their preferences for family–work balance, something that they would not have been able to do as wage earners.[23]

By contrast, the work-hour distribution for new mothers in group (2) has two humps in 2011, compared with a roughly unimodal distribution spiking around the median in 2006. One hump in the 2011 distribution corresponds to women working around 40 hours per week—the standard full-time week that many of them worked before having newborn children—and the other hump is observed close to zero (Figure 1[b]). Between these two humps, the weekly work-hour density is quite low, relative to the humps.

The changes in the distributions of weekly market-work hours for groups (1) and (2) show that new mothers in group (1) worked considerably more flexible hours in 2011, compared with new mothers from group (2). This finding supports the view that women choose self-employment to be able to work more flexible hours, and better balance family and work.

The next step is to compare women in groups (1) and (3) (Figures 1[a] and 1[c]). For the women in group (3), the 2006 and 2011 weekly work-hour distributions are very similar. Figure 1(c) shows neither a major redistribution of work hours nor a drop in the share of women working close to 40 hours per week, as is the case for women in group (1). The main difference between the 2006 and 2011 distributions is that in 2011, proportionally fewer women worked less than 10 hours per week, and more worked between 10 and 30 hours.[24] It also appears that the distribution shifted slightly to the right of the 2006 median. Across the whole distribution, women in group (3) seem to work more hours after becoming self-employed than when they were wage earners. This result suggests that the reasons why the women in group (3) become self-employed may be different from the reasons why the women in group (1) become self-employed. Women whose decisions are less likely to be motivated by balancing family and work may be less attracted by flexibility in work hours and more attracted by other opportunities associated with self-employment (e.g., higher earnings potential), even if such opportunities demand longer work hours.

5.2 Counterfactual densities

The robustness check in this section focuses on the impact of differences in the characteristics of three groups of women on the differences in the distributions of weekly work hours observed in Figure 1. The three groups are (1) new mothers who transitioned to self-employment, (2) new mothers who remained wage earners, and (3) women other than new mothers who became self-employed between 2006 and 2011. What would the distributions of work hours in Figures 1(b) and 1(c) look like if the main observable characteristics of the women in groups (2) and (3) were the same as those of the women in group (1)? The answer to this question can be obtained using the DiNardo, Fortin and Lemieux (1996) decomposition, which produces a visual representation of the impact of various observable characteristics on the density of weekly work hours.

22. Some new mothers worked more than 50 hours, but these are exceptional cases.
23. Figure 1(a) also shows that some mothers worked more hours after becoming self-employed.
24. Self-employment seems to increase the number of work hours for women who worked very few hours when they were wage earners.

The method generates counterfactual densities based on a "reweighting function." In this study, the weights are obtained using predicted probabilities from a probit model.[25] The set of conditioning variables is the same as that in Table 3, excluding the variables for new mothers (and for changes in the number of children under the age of 6 between 2006 and 2011).

Figure 2(a) replicates Figure 1(a). Figure 2(b) shows what the hypothetical 2006 and 2011 weekly work-hour densities of women in group (2) would look like if the observed attributes of these women were the same as those of women in group (1). The counterfactual distributions are very similar to the actual distributions of weekly work hours of women in group (2) and to changes in the distribution from 2006 to 2011 (Figure 1[b]). The spike around the 40-hour mark in the 2006 distribution is slightly more pronounced in Figure 2(b) than in Figure 1(b), and the same can be said about the hump around the 0-hour mark. Overall, however, the differences in the observable characteristics between group (1) and group (2) seem to play only a minor role in the differences between their work-hour densities.

In the same way as Figure 2(b), Figure 2(c) shows what the weekly work-hour densities of women in group (3) would look like if the observed characteristics of these women were similar to those of women in group (1). In this case, the differences between the actual densities, in Figure 1(c), and the counterfactual densities, in Figure 2(c), are quite notable. Women in group (1) are generally younger and have fewer children than women in group (3), and these two factors appear to be the main contributors to the differences in the actual and counterfactual densities of women in group (3). If women in group (3) had the characteristics of women in group (1), their work-hour distribution would be much more concentrated around the 40-hour mark in 2006. However, the salient feature of Figure 2(c) is that, although fewer women in group (3) would work 40 hours per week in 2011 compared with 2006, more women would work more than 40 hours. In other words, the difference between the counterfactual densities in Figure 2(c) suggests that a substantial number of women in group (3) who are working 40 (or close to 40) hours per week as wage employees would work even longer hours after becoming self-employed.

6 Transition to self-employment and occupational differences

Figures 1(a) and 1(b) reveal a notable difference between new mothers in group (1) and new mothers in group (2). Although both distributions are clustered around the median in 2006 (when both groups were in wage employment), the density of the hump is much lower for group (1) than for group (2). In other words, even in 2006, when both groups were in wage employment (and before their young children were born), the market-work hours of the new mothers who would later switch to self-employment were more dispersed than the market-work hours of their counterparts who would remain in wage employment. This observation raises the following questions. Are there some basic differences in skills and job characteristics between the two groups that manifest themselves in the differences in the dispersion of work hours observed in 2006? Furthermore, do these differences make it easier for women who become self-employed to make such a transition? The differences between the occupations of new mothers who become self-employed and those who remain wage workers are examined in this section. The analysis in this section uses 10 broad occupational categories to maintain a sufficient sample size in each category.[26]

The first and third columns in Table 4 compare the 2006 occupational distribution of new mothers who remained wage workers with that of new mothers who transitioned from wage employment to self-employment. Table 4 shows that the shares are similar in most occupational categories.

25. DiNardo, Fortin and Lemieux (1996) explain the method in detail and provide several examples.
26. Occupations are classified according to the 2006 National Occupational Classification for Statistics.

There are, however, notable differences. For instance, the group of new mothers who switched to self-employment by 2011 has a considerably higher share of women with occupations in art, culture, recreation and sport, and a lower share of women with occupations in social science, education, government service and religion.

The first two columns in Table 4 also show that the occupational distribution of new mothers who remained in wage employment changed little between 2006 and 2011, apart from a substantial decline in the share employed in sales and service.

The last two columns in Table 4, which present changes in the occupational distribution of the new mothers who transitioned from wage employment to self-employment, reveal substantial heterogeneity in the occupations of these women before and after the transition. However, the differences between the occupational distributions in 2006 and 2011 indicate that, for a substantial number of these women, a transition from wage employment to self-employment also coincides with an occupational change. Compared with the 2006 distribution, the 2011 distribution shows an increase in the share of occupations in health; social science, education, government service and religion; and art, culture, recreation and sport. Conversely, substantial reductions in shares are observed in business, finance and administrative occupations; natural and applied sciences and related occupations; and occupations unique to processing, manufacturing and utilities. Little change is observed for sales and service occupations.

Table 4
Occupational distribution of new mothers, 2006 to 2011

	New mothers who remained wage workers		New mothers who transitioned to self-employment	
	2006	2011	2006	2011
	percent			
Occupations				
Management	6.4	8.9	9.8	10.5
Business, finance and administrative occupations	26.7	25.9	25.7	13.5
Natural and applied sciences and related occupations	5.4	5.2	6.9	4.8
Health	12.1	13.9	10.6	13.4
Social science, education, government service and religion	19.8	22.3	12.9	20.3
Art, culture, recreation and sport	3.1	3.1	8.9	14.6
Sales and service	22.3	16.4	19.7	19.5
Trades, transport and equipment operators and related occupations	1.0	1.3	1.8	2.1
Occupations unique to primary industry	0.5	0.8	0.8	x
Occupations unique to processing, manufacturing and utilities	2.7	2.2	3.1	x
	number			
Observations (weighted)	486,336	486,336	29,946	29,946
Observations (unweighted)	9,346	9,346	553	553

x suppressed to meet the confidentiality requirements of the *Statistics Act*

Note: The percentages in each column may not add up to 100% because of rounding or confidentiality requirements.

Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

In addition, Table 5 shows that women in health occupations in 2006 were least likely to change their occupation when they became self-employed. More than 80% of the new mothers who had worked in health occupations in 2006 and made a transition to self-employment remained in health occupations after becoming self-employed. Those in business, finance and administrative occupations—the single largest category in 2006—were highly likely to work in a different occupation after becoming self-employed. A recent study argues that for some occupations, flexible work arrangements come at a higher cost than for other occupations, because of the ways jobs are structured and remunerated (Goldin 2014). While the relationship between earnings and working hours is linear in some occupations, in others it is not. Corporate, financial and legal

occupations may disproportionally reward individuals who work long hours or those who work at a specific time of the day. In contrast, there appears to be no wage disadvantage associated with flexibility in occupations related to health, science and technology. Goldin's findings are consistent with the occupational transitions observed in Table 5. Women may prefer working—at least temporarily, while their children are still young—in occupations that allow for greater flexibility without incurring a wage disadvantage.

Table 5
Occupational changes among new mothers who transitioned to self-employment from wage employment, 2006 to 2011

Occupations in 2006	Stay in the same occupation in 2011
	percent
Management	25.6
Business, finance and administrative occupations	23.0
Natural and applied sciences and related occupations	33.5
Health	81.2
Social science, education, government service and religion	36.9
Art, culture, recreation and sport	64.4
Sales and service	47.7
Trades, transport and equipment operators and related occupations	53.1
Occupations unique to primary industry	68.8
Occupations unique to processing, manufacturing and utilities	< 20.0

Source: Statistics Canada, authors' calculations based on the 2006 Census of Population–2011 National Household Survey data.

7 Conclusion

An often-expressed concern is that women find it hard to balance their childcare responsibilities with the demands of their working careers. Self-employment, which is usually associated with flexibility, can be an attractive alternative to wage employment for mothers wishing to remain in the labour force while taking care of their young children. Previous studies find that the presence of young children is associated with an increase in the probability of women being self-employed. Few such studies, however, explicitly consider a more direct link between self-employment and family–work balance: transitions from wage employment to self-employment associated with the arrival of new children in the family. Even greater uncertainty surrounds the issue of how new mothers who switch to self-employment adjust the time they spend on market work, and how such adjustments compare with the adjustments made by new mothers who remain wage workers.

This study suggests that self-employment offers an avenue for women with young children to improve their family–work balance in two important ways. First, it gives them greater flexibility to adjust the total number of daily or weekly hours spent on market work in a way that suits their childcare and home-production needs far better than the typical discrete work-time choices offered by employers (full-time work, part-time work or no employment). Second, unlike wage employment that normally requires employees to work continuously for a certain number of hours, self-employment allows women to fragment their daily work schedule and tailor it to their childcare needs.

The empirical part of the analysis, based on a two-period panel of data that were linked between the 2006 Census and the 2011 National Household Survey, shows that, when a large set of observable covariates is controlled for, new mothers are more likely to make a transition to self-employment than other women in wage employment. Importantly, there is a marked difference in the distribution of the weekly work hours of new mothers before and after the transition. The distribution is far more uniform after the transition to self-employment than when they were in wage employment. The distribution is also far more uniform among new mothers who make a transition to self-employment than among those who stay as wage workers and whose distribution is roughly bimodal. These and other results of the study strongly support the view that flexibility in work hours is an important factor associated with the transitions of new mothers from wage employment to self-employment.

Finally, the results also highlight occupational mobility among women switching from wage employment to self-employment. For many such women, a transition to self-employment also means changing their occupation. A notable exception is health-care workers, who are likely to remain health-care workers when they enter into self-employment.

8 Appendix

Appendix Table 1-1
Estimated average marginal effects on entry into self-employment and wage employment, women married in both 2006 and 2011 — Part 1

	Probability of entry into self-employment				Probability of entry into wage employment			
	Model 1		Model 2		Model 3		Model 4	
Variable	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
	coefficient	standard error	coefficient	standard error	coefficient	standard error	coefficient	standard error
Age group (omitted: 21 to 25)								
26 to 30	-0.006 ***	0.001	-0.005 ***	0.001	0.103 ***	0.006	0.094 ***	0.006
31 to 35	-0.002 *	0.001	0.001 †	0.001	0.015 *	0.006	0.002	0.006
36 to 40	-0.007 ***	0.001	-0.003 ***	0.001	-0.019 **	0.006	-0.037 ***	0.006
Education (omitted: high school or less)								
Some postsecondary	0.000	0.000	0.000	0.000	-0.075 ***	0.003	-0.074 ***	0.003
Bachelor's degree	0.005 ***	0.000	0.004 ***	0.000	-0.082 ***	0.004	-0.079 ***	0.004
Graduate degree	0.034 ***	0.001	0.033 ***	0.001	-0.174 ***	0.005	-0.166 ***	0.005
Mother tongue other than English or French	-0.006 ***	0.000	-0.006 ***	0.000	0.063 ***	0.004	0.064 ***	0.004
Visible minority	0.003 ***	0.001	0.003 ***	0.001	-0.071 ***	0.004	-0.069 ***	0.004
Other family income (log)	0.005 ***	0.000	0.005 ***	0.000	0.014 ***	0.002	0.015 ***	0.002
Urban	-0.002 ***	0.000	-0.002 ***	0.000	0.040 ***	0.003	0.041 ***	0.003
Region (omitted: Ontario)								
Atlantic provinces	-0.012 ***	0.001	-0.011 ***	0.001	0.006	0.006	0.002	0.006
Quebec	0.012 ***	0.000	0.012 ***	0.000	-0.033 ***	0.003	-0.033 ***	0.003
Prairies	0.018 ***	0.000	0.017 ***	0.000	0.026 ***	0.003	0.026 ***	0.003
British Columbia	0.011 ***	0.001	0.011 ***	0.001	0.065 ***	0.004	0.065 ***	0.004
Age of the youngest child in 2006 (omitted: no children)								
0 to 1	0.020 ***	0.001	0.017 ***	0.001	-0.028 ***	0.005	-0.045 ***	0.005
2 to 3	0.009 ***	0.001	0.012 ***	0.001	0.044 ***	0.006	0.011 *	0.006
4 to 5	0.006 ***	0.001	0.010 ***	0.001	-0.031 ***	0.006	-0.066 ***	0.006
6 to 12	0.002 *	0.001	-0.004 ***	0.001	0.089 ***	0.005	0.106 ***	0.005
13 to 17	-0.001	0.001	-0.005 ***	0.001	-0.029 ***	0.007	-0.016 *	0.007
18 and over	0.038 ***	0.003	0.039 ***	0.003	0.005	0.021	0.012	0.021

* significantly different from reference category ($p < 0.05$)

** significantly different from reference category ($p < 0.01$)

*** significantly different from reference category ($p < 0.001$)

† significantly different from reference category ($p < 0.10$)

Notes: Industry controls are included in all models. The unweighted number of observations is 40,697 for Models 1 and 2, and 3,521 for Models 3 and 4.

Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

Appendix Table 1-2
Estimated average marginal effects on entry into self-employment and wage employment, women married in both 2006 and 2011 — Part 2

	Probability of entry into self-employment				Probability of entry into wage employment			
	Model 1		Model 2		Model 3		Model 4	
Variable	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
	coefficient	standard error	coefficient	standard error	coefficient	standard error	coefficient	standard error
Number of children under the age of 18 in 2006	-0.002 ***	0.000	0.002 ***	0.000	-0.002	0.002	-0.011 ***	0.002
New mothers	0.012 ***	0.001	...	...	-0.056 ***	0.005	...	...
Changes in the number of children under the age of 6 between 2006 and 2011 (omitted: no change)								
Number of children declined	...	...	-0.011 ***	0.001	...	...	0.062 ***	0.004
Number of children increased by 1	...	...	0.009 ***	0.001	...	...	-0.030 ***	0.004
Number of children increased by 2 or more	...	...	0.024 ***	0.001	...	...	-0.109 ***	0.006

... not applicable

*** significantly different from reference category ($p < 0.001$)

Notes: Industry controls are included in all models. The unweighted number of observations is 40,697 for Models 1 and 2, and 3,524 for Models 3 and 4.

Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

Appendix Table 2
Mean and median weekly work hours in 2006 and 2011

	Observations (unweighted)		
	number	mean	median
Women who transitioned from wage employment to self-employment			
New mothers			
2006	553	33.7	39
2011	553	25.8	25
Women other than new mothers			
2006	2,322	26.7	30
2011	2,322	30.9	35
Women who remained in wage employment			
New mothers			
2006	9,346	33.6	40
2011	9,346	23.4	32
Women other than new mothers			
2006	48,214	29.1	36
2011	48,214	32.7	38

Notes: The number of hours worked reflects the number of hours worked during a reference week.

Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

Appendix Figure 1
Changes in the cumulative distribution of weekly hours from 2006 to 2011

Note: Vertical lines represent median hours.
Source: Statistics Canada, authors' calculations based on 2006 Census of Population–2011 National Household Survey data.

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